

Serial No.: 10/676,186  
Examiner: David A. Zameke  
Title: SOLID-STATE IMAGING DEVICE AND METHOD FOR PRODUCING THE SAME  
Page 2 of 6

### **Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

### **Listing of Claims:**

1. (Previously presented) A solid-state imaging device, comprising:  
a substrate;  
an imaging element that is mounted on the substrate;  
a rib provided on the substrate so as to surround the imaging element;  
a transparent plate that is fixed to a top face of the rib;  
a wiring for connecting electrically the inside of a package with the outside of the package, the package being comprised of the substrate, the rib and the transparent plate;  
and  
a thin metal wire for connecting an electrode of the imaging element with the wiring,  
wherein the wiring includes: an internal electrode disposed on a surface of the substrate; an external electrode disposed on a rear surface of the substrate; and an end face electrode disposed under the rib so as to penetrate the substrate along a side face of the substrate, the end face electrode connecting the internal electrode and the external electrode, and  
at least a part of the end face electrode, the side face of the substrate, an outer side face of the rib and a side face of the transparent plate form a substantially coplanar surface.
2. (Currently amended) The solid-state imaging device according to claim 1, wherein the side face of the substrate, the outer side face of the rib and the side face of the transparent plate are in a plane formed by cutting them ~~sequentially~~ in a single operation.

Serial No.: 10/676,186

Examiner: David A. Zameka

Title: SOLID-STATE IMAGING DEVICE AND METHOD FOR PRODUCING THE SAME

Page 3 of 6

3. (Original) The solid-state imaging device according to claim 1, wherein an internal side face of the rib has a tilt such that the internal side face spreads outwardly from a face of the substrate toward the transparent plate.
4. (Original) The solid-state imaging device according to claim 3, wherein the internal side face of the rib has a flat surface, and an angle of the tilt is within a range of 2° to 12° with respect to a direction perpendicular to the face of the substrate.
5. (Original) The solid-state imaging device according to claim 1, wherein an orange peel skin pattern or a grained pattern is formed on an internal side face of the rib.
6. (Original) The solid-state imaging device according to claim 1, wherein an internal side face of the rib has a flat surface, and an external side face and the internal side face of the rib are perpendicular to the face of the substrate.
7. (Previously presented) The solid-state imaging device according to claim 1, wherein an end face of the end face electrode is disposed in a recess that is formed on the end face of the substrate, and  
a surface of the end face electrode forms a substantially coplanar face with the end face of the substrate, or is recessed relative to the end face of the substrate.
8. (Original) The solid-state imaging device according to claim 1, wherein a surface of the external electrode forms a substantially coplanar surface with the rear surface of the substrate.
9. (Original) The solid-state imaging device according to claim 1, wherein a surface of the external electrode is recessed relative to the rear surface of the substrate.
10. (Original) The solid-state imaging device according to claim 9, wherein an insulation film is formed on the rear face of the substrate, and

Serial No.: 10/676,186  
Examiner: David A. Zameke  
Title: SOLID-STATE IMAGING DEVICE AND METHOD FOR PRODUCING THE SAME  
Page 4 of 6

the insulation film and the external electrode are arranged so as not to overlap each other.

11. (Original) The solid-state imaging device according to claim 9, wherein an insulation film is formed on the rear face of the substrate, and a peripheral portion of the external electrode and the insulation film are arranged so as to overlap each other.

12. (Currently amended) A method for producing the solid-state imaging device, comprising the steps of:

forming a top-side conductive layer and a bottom-side conductive layer on a top face and a bottom face of a base material, and forming a perforation conductive layer that penetrates through the base material so as to connect the top-side conductive layer and the bottom-side conductive layer;

providing a rib formation member for forming the rib on the base material at a boundary between regions, each of which is for fixing a solid-state imaging element, so that the rib formation member is positioned above the perforation conductive layer;

fixing the imaging element in each region surrounded by the rib formation member and connecting the electrode of the imaging element and the top-side conductive layer by means of the thin metal wire;

fixing the transparent plate to a top end face of the rib formation member; and

cutting the perforation conductive layer, the base material, the rib formation member and the transparent plate sequentially in a single operation in a direction perpendicular to the surface of the base material and in a direction that divides a width in a planar shape of the rib formation member into halves so as to separate into respective pieces of the solid-state imaging devices.

13. (Original) The method for producing the solid-state imaging device according to claim 12, wherein the rib formation member is formed in a lattice form.

Serial No.: 10/676,186  
Examiner: David A. Zarneke  
Title: SOLID-STATE IMAGING DEVICE AND METHOD FOR PRODUCING THE SAME  
Page 5 of 6

14. (Original) The method for producing the solid-state imaging device according to claim 12, wherein the rib formation member is formed on the base material by resin forming.
15. (Original) The method for producing the solid-state imaging device according to claim 14, wherein the resin forming is carried out by molding using molds.
16. (Original) The method for producing the solid-state imaging device according to claim 15, wherein, when forming the rib formation member by the resin molding, a sheet for suppressing generation of the resin flash is interposed between a mold for the resin molding and the base material.
17. (Previously presented) The solid-state imaging device according to claim 1, wherein the external electrode is disposed on a rear surface of the substrate at a position corresponding to the internal electrode.